WHAT IS CLAIMED IS:

1. An image interpolating method, wherein low resolution pixels $Y_{i,j}$ of an image are zoomed to high resolution pixels $Y_{2i,2j}$, comprising:

receiving the low resolution pixels $Y_{i,j}$;

determining a homogenous area and an edge area of the image based on pixel differences of the pixels $Y_{2i,2j}$ in comparing with a threshold;

interpolating the low resolution pixels belonging to the homogenous area into the high resolution pixels by a first interpolating algorithm; and

interpolating the low resolution pixels belonging to the edge area into the high resolution pixels by a second interpolating algorithm.

2. The image interpolating method of claim 1, in the step of determining the homogenous area and the edge area of the image, wherein three variables of

$\Delta Y_1 = |Y_{2i,2j} - Y_{2i+2p,2j+2q}|$, $p,q \in \{(0,1),(1,0)\}$,

$\Delta Y_2 = |Y_{2i+2,2j} - Y_{2i,2j+2}|$, and

$\Delta Y_3 = |Y_{2i,2j} - Y_{2i+2,2j+2}|$

are used to determine whether the homogenous area or the edge area by a condition set of:

if $\Delta Y_1 <$ the threshold then

the pixel $Y_{2i+p,2j+q}$ is in the homogenous area

else

the pixel $Y_{2i+p,2j+q}$ is in the edge area as one of edge pixels;

if $\Delta Y_2 <$ the threshold and $\Delta Y_3 <$ the threshold then

the pixel $Y_{2i+1,2j+1}$ is in the homogenous area

else if $\Delta Y_2 <$ the threshold then

the pixel $Y_{2i+1,2j+1}$ is in the homogenous area

else if $\Delta Y_3 <$the threshold then

the pixel $Y_{2i+1,2j+1}$ is in the homogenous area

else

the pixel $Y_{2i+1,2j+1}$ is in the edge area as one of edge pixels.

3. The image interpolating method of claim 2, wherein the first interpolating algorithm includes obtaining the pixel $Y_{2i+p,2j+q}$ by calculating $(Y_{2i,2j} + Y_{2i+2p,2j+2q}) / 2$.

4. The image interpolating method of claim 2, wherein the first interpolating algorithm includes:

when $\Delta Y_2 <$ the threshold and $\Delta Y_3 <$ the threshold,

the pixel $Y_{2i+1,2j+1}$ is obtained by calculating $Y_{2i+1,2j+1} = (Y_{2i+2,2j} + Y_{2i,2j+2}) / 2$ if the $\Delta Y_2$ less than $\Delta Y_3$; and

the pixel $Y_{2i+1,2j+1}$ is obtained by calculating $Y_{2i+1,2j+1} = (Y_{2i,2j} + Y_{2i+2,2j+2}) / 2$ if the $\Delta Y_3$ is less than $\Delta Y_2$.

5. The image interpolating method of claim 2, wherein the first interpolating algorithm includes:

when only $\Delta Y_2 <$ the threshold for the $\Delta Y_2$ and the $\Delta Y_3$, the pixel $Y_{2i+1,2j+1}$ is obtained by calculating $(Y_{2i+2,2j} + Y_{2i,2j+2}) / 2$.

6. The image interpolating method of claim 2, wherein the first interpolating algorithm includes:

when only $\Delta Y_3 <$ the threshold for the $\Delta Y_2$ and the $\Delta Y_3$, the pixel $Y_{2i+1,2j+1}$ is obtained by calculating $(Y_{2i,2j} + Y_{2i+2,2j+2}) / 2$.

7. The image interpolating method of claim 1, wherein the first interpolating algorithm includes:

when the pixels $Y_{2i,\,2j}$ in the homogenous area, the pixels $Y_{2i,\,2j}$ are interpolated by a linear interpolation algorithm.

8. The image interpolating method of claim 2, wherein the second interpolating algorithm includes interpolating the pixels $Y_{2i,2j}$ along a direction having a minimum difference in the neighboring pixels.

9. The image interpolating method of claim 8, wherein the neighboring pixels of one of the pixels $Y_{2i,2j}$ does not include a determined edge pixel.

10. The image interpolating method of claim 8, wherein when the minimum difference $diff_{min}$ is determined by taking a minimum of four differences of

$$diff_1 = | Y_{2i-1,2j} - Y_{2i+1,2j}|,$$

$$diff_2 = |Y_{2i-1,2j-1} - Y_{2i+1,2j+1}|,$$

$$diff_3 = |Y_{2i,2j-1} - Y_{2i,2j+1}|, \text{ and}$$

$$diff_4 = |Y_{2i+1,2j-1} - Y_{2i-1,2j+1}|,$$

wherein the differences including one of the edge pixels is skipped.

11. The image interpolating method of claim 8, wherein the pixel $Y_{i,j}$ is obtained by calculating $(Y_{2i-1,2j} + Y_{2i+1,2j}) / 2$ at a direction with the minimum pixel difference.

12. An image interpolating algorithm for an image, wherein low resolution pixels $Y_{i,\,j}$ of the image are zoomed to high resolution pixels $Y_{2i,\,2j}$, wherein three variables of $\Delta Y_1 = |Y_{2i,2j} - Y_{2i+2p,2j+2q}|$, $\Delta Y_2 = |Y_{2i+2,2j} - Y_{2i,2j+2}|$, and $\Delta Y_3 = |Y_{2i,2j} - Y_{2i+2,2j+2}|$, $p,q \in \{(0,1),(1,0)\}$ are used, the image interpolating algorithm comprising:

determining at least one of edge pixel and interpolating the pixels Y2i, 2j if the pixel to be interpolated is not the edge pixel by a first algorithm as follows:

if $\Delta Y1 <$ a threshold then

$$Y_{2i+p,2j+q} = (Y_{2i,2j} + Y_{2i+2p,2j+2q}) / 2$$

else

$Y_{2i+p,2j+q}$ are the edge pixel

if $\Delta Y_2 <$ the threshold and $\Delta Y_3 <$ the threshold then

$$\Delta Y_{min} = \min\{\Delta Y_2, \Delta Y_3\}$$

if $\Delta Y_{min} = \Delta Y_2$

$$Y_{2i+1,2j+1} = (Y_{2i+2,2j} + Y_{2i,2j+2}) / 2$$

else

$$Y_{2i+1,2j+1} = (Y_{2i,2j} + Y_{2i+2,2j+2}) / 2$$

else if $\Delta Y_2 <$ the threshold then

$$Y_{2i+1,2j+1} = (Y_{2i+2,2j} + Y_{2i,2j+2}) / 2$$

else if $\Delta Y_3 <$ the threshold then

$$Y_{2i+1,2j+1} = (Y_{2i,2j} + Y_{2i+2,2j+2}) / 2$$

else

$Y_{2i+1,2j+1}$ is one of the edge pixel.

13. The image interpolating algorithm of claim 1, further comprising interpolating the edge pixels according to a second algorithm as follows:

calculating a plurality of pixel differences of

$$diff_1 = | Y_{2i-1,2j} - Y_{2i+1,2j}|,$$

$$diff_2 = |Y_{2i-1,2j-1} - Y_{2i+1,2j+1}|,$$

$diff_3 = |Y_{2i,2j-1} - Y_{2i,2j+1}|$, and

$diff_4 = |Y_{2i+1,2j-1} - Y_{2i-1,2j+1}|$,

wherein the differences including one of the edge pixels is skipped;

finding a minimum of the pixel differences; and

interpolating the pixel $Y_{2i,\,2j} = (Y_{2i-1,2j} + Y_{2i+1,2j}) / 2$ at a direction with the minimum pixel difference.